

ton he regards as the products of special environments rather than of superlative men: "It is in fact remarkable how small a part originality plays in the achievements of the most exalted creative people . . . This probably applies in all fields."

It seems that Dr. Kalmus's proper humility about the power of his own subject (he is Lecturer in Eugenics at University College) may have led him to over-rate the knowledge and power of those who deal with environmental factors. There is, for example, no good evidence that men of high intellectual achievement can be formed by special upbringing. Reflection on the biographies of men of high ability shows so little common in the nature of their upbringing that the random occurrence of a genetically determined superiority cannot be dismissed.

Human genetics are indeed imprecise, but Dr. Kalmus's corollary that eugenic programmes are premature is escapist. The explosive growth of world population will of necessity result in selective forces favouring certain human stocks as against others. Many small primitive people have already reached disappearing point: starvation and deliberate extermination have destroyed them. The problem which we must face is whether these crude and uncontrollable forces will be allowed to act upon larger groups in the future, or whether a humane, though imperfect, eugenic programme will take their place.

Apart from these rather general criticisms there is little to fault and much to praise in the book. The chapters on the material basis of heredity and on blood groups are particularly well written; those on radiation dangers and on racial problems give a detached and rational account of these controversial and emotionally charged topics.

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POPULATION AND RESOURCES

Freeman, T. W. *Pre-famine Ireland*. Manchester, 1957. University Press. Pp. viii + 352. Price 35s.

THOSE OF US who feel deep concern about problems of growing populations and relatively static resources can know no certainty as to what the future will bring. We can only hope that there will be some new development to

ease the pressure on subsistence. It is possible to speak only in probabilities. Those who have been over-loud in their jeremiads have had time enough in which to regret them, even while remaining pessimistic about prospects for the long run. Others have reacted far too violently to pessimism, to the extent of claiming that no matter how large the population and how rapid its growth suitable provision can (by following the right economic or political system) be made. To all such persons it is instructive and sobering to read of a country where resources *did* fail to support the population and to learn of the consequences of the failure. It is especially enlightening to know of the conditions at a time just before the unsuspected catastrophe occurred.

The country of the catastrophe is, of course, Ireland, and it is fortunate for the purposes of analysis that the Irish census of 1841, which preceded the great famine of 1845-52 by only four years, was an accurate social survey carried out in illuminating detail. That the author of this book is a geographer and a historian rather than an economist and a demographer is of little disadvantage in this connection. He is sufficiently aware of the interests and aims of his fellow specialists to deal with the matter in a way to please them. His book gains from a knowledge of the soil, because many of the measurements of population density and agricultural production require careful qualification according to the quality of the terrain. Mountains, bogs and heaths impose severe restrictions upon cultivation. If part of the book pays rather too close an attention to local detail for the general reader, at least it is separated and clearly labelled; as it happens, those who can spare the time to go through the closer study of the successive regions will find the text very readable and un-repetitive. Chief gratitude will be extended to the author, however, for Chapters 1 to 6, which deal with agriculture, trade, communications and social problems, and for the concluding Chapter 12, which summarizes the consequences of the famine clearly and succinctly.

Ireland in 1841 was undeniably overpopulated, having regard to the social and economic conditions of the times. There were 400 persons

to the square mile, or even more, over extensive areas. A large part of the people existed, with their livestock, in wretched mud dwellings on holdings of land far too small for their support. Only the potato could keep them alive. Seasonal migration and emigration were essential for many in order that they could make their living elsewhere. When the potato crops failed in successive years many died, and others escaped only because of the fortunate circumstance that virgin land was available for cultivation in North America. Of the course of the famine itself the book gives no direct account; this is an omission that must be regretted, but in many ways the preceding state is more important than the event itself. This state is significant for countries whose position to-day is, in many respects, similarly precarious to that of Ireland in 1841 and for whose people the prospects of emigration are now immeasurably poorer.

The book is clearly written and is enriched by an impressive list of sources, an index and a long series of well-produced maps.

P. R. C.

AGEING

Yapp, W. B. and Bourne, G. H. (Editors). *The Biology of Ageing: Symposia of the Institute of Biology, No. 6.* London, 1957. Institute of Biology. Pp. xiv + 128. Price 25s.

ONE OF THE MAIN problems in contemporary scientific advances is the communication of information between different disciplines. Not only is there a barrier due to variation in background training but even more important are the emotional difficulties and defences that are put up, and which are frequently subconscious in origin. One of the best methods of overcoming these difficulties is the symposium and there is reason to believe that barriers are more easily broken down when the meeting is a residential one so that much of the discussions can be informal.

One of the most interesting recent symposia was that held at University College devoted to the Biology of Ageing, the transactions of which have recently appeared in book form.

The breadth of the subject is certainly surprising and extends from Ageing in Higher

Plants to Psychological changes with Age. Of recent years there has been widespread research in ageing among men, animals and plants and there are clearly wide differences in the process. The contributions provide us with a brief survey of the biological problem of ageing, as it is at present understood. The first few papers illustrate clearly our need to distinguish the senile changes that may take place in a cell from those that may be characteristic of tissues in a living body or of a whole many-celled organism.

Annual plants age or appear to age in a fairly obvious way and this has often been associated with such processes as flowering and fruiting. Dr. Heath, however, quotes experiments in which flowering has been stopped without any effect upon the manifestations of ageing. In this connection it is of interest that many Western philosophers have assumed that sexual manifestations promote ageing, but the Taoists of China in the sixth century A.D. adopted the more cheerful supposition that sexual activity tends to delay senescence, perhaps through the relief of tension.

Those who feel that inheritance must somehow be playing a part in longevity will find in the paper by Mr. J. Maynard Smith an indication of the difficulties that attend research of this kind. The fact that under favourable conditions the members of one species apparently live much longer than members of another species of about the same size suggests that various selective forces must have been at work in their evolution, but what these selective forces were and how they worked is not at all clear. As Dr. Comfort points out, where the risks of death are numerous and constant, few if any members of a species might ever live long enough for senescence to manifest itself among them. This is possibly the fate of many small birds and mammals in the wild.

Dr. Comfort's paper leads on naturally to man. The research experience expressed in this book gives the impression we have of ageing in the animals with which we are most familiar is much the same as the impression of ageing by our own species. In his survey of the clinical aspects of senescence, Professor Hobson brings into relief the fact that old age is frequently